PSS Gen-1 Review Items
June 16, 2005

Design & Operational
Safety Compliance Questions

	Item	Comment/Question	Responses	Response Rating
1.	ANL ESH 5.16.5.3 para. 9. "When an interlock system has been tripped, it must be possible…only by manually resetting…faults"	PSS Chain B does not latch faults.	This should be done, but implemented in a way that limits "cascading of faults" in 2nd PSS Chain.	1
2.	ANL ESH: 5.16.5.2 para. 3 & DOE G 420.2B Guidance: 3a-2-iii. Emergency Shutoff Devices: "No control will be installed at any radiological area exit that would prevent rapid evacuation of personnel under emergency conditions."	Is there a compliance issue here with the pneumatic doors? They are very slow to open. See 29CFR 1910.37 on SIG website.	With respect to fire protection, the stations are considered to be like equipment cabinets. This means a lower level of fire protection is required. Specifically; administrative control. Policy States "..no one is allowed inside a station with the doors closed at anytime.." 2nd Level of protection are the E-Stops & Emergency Egress Box. Note: A fire protection review of the APS station was conducted in ~1997 with no findings or comments about emergency egress issues.	3
3.	DOE G 420.2B Guidance: 3.a.1-iiib. "Critical Device Command & Control systems should be independent of the monitoring systems"	In the present design the safety system is used to routinely operate the front-end and beamline shutters, not just enabling their operation.	The terms "command & control monitoring system" are currently being discussed by ANL/APS & BNL. It is clear thus far that at BNL "Command & Control Systems" means the Interlock system while "monitoring system" means simply a data logging system. Thus, given the wide interruption of these terms, keeping command functionality in the PSS G1 is consistent with this DOE Guidance.	3
4.	DOE G 420.2B Guidance: 3a-2 para 4 & ANL ESH 5.16.5.3 para 8. Signage reflecting station status	PSS does not currently provide signage reflecting station status at each entrance. Previously, credit has been given for information at 15u's & door control boxes for station status and entry is prohibited.	This should be done.	2
5.	DOE G 420.2B Guidance: 3a-1,i & ANL ESH 5.16.5.3 para 7. PSS must fail safe under loss of power, open circuits and shorts to ground.	Currently, loss of power and opens fail safe shorts to ground generally cause fuses to blow thus the subsequent loss of power causes PSS to fail safe.	The extent to which PSS G1 complies with this requirement should be reviewed in more detail.	3

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6.	ANL ESH 5.16.5.3 para 2. *Computer-based systems..solid state…unsafe…check between loops.	Cross Trip PSS Chains A & B	The intent of this requirement is being investigated by APS/Safety of Tom Barkalow. First reading is this is more concerned with "unsafe states.." due to solid state failure modes. This concern is not mitigated by cross tripping of outputs.	2
7.	ANL ESH 5.16.5.3 para 5. Switches or sensors must be inaccessible from the "safe" side of the access point.	PSS door switches are effectively inaccessible because of mounting elevation and door cover.	According to APS Safety Tom Barkalow "inaccessible…" includes protect places that are not easily accessed.	3
8	DOE G 420.2B & ANL ESH 5.16	Better as built dwgs.	This is being done.	1
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Response Rating Key

1 = Should be done ASAP
2 = Should be done but not ASAP
3 = Might be done but needs more review/information/or variance
4 = Not necessary or already being provided.